## REMARKS

### Status of Claims

The Office Action mailed June 24, 2005, has been reviewed and the comments of the Patent and Trademark Office have been considered.  Claims 1-23 were pending in the application.  Claims 1-6, 10, 12-13, 15-18, 20, and 22-23 have been amended and no claims have been canceled or newly added.  Therefore, claims 1-23 are pending in the application and are submitted for reconsideration.

This amendment changes claims in this application.  A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, are presented, with an appropriate defined status identifier.

### Prior Art Rejections

In the Office Action, claims 1-10, 12-20, 22, and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent 6,330,556 to Chilimbi et al. (hereafter "Chilimbi") in view of U.S. patent 5,974,438 to Neufeld.  Claims 11 and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chilimbi in view of Neufeld, further in view of U.S. patent 5,675,790 to Walls (hereafter "Walls').

Applicants note that the prior rejections based on Chilimbi and Walls have been withdrawn pursuant to the appeal brief filed on April 18, 2005.  The Office Action now alleges that the deficiencies in Chilimbi are cured by the newly applied Neufeld reference.  However, even this combination does <u>not</u> disclose or suggest the claimed invention for at least the following reasons.

Each of the independent claims 1, 13, and 23 recite a method (or system/software) that operates a <u>*code* cache</u> in a <u>dynamic *instruction* translator</u> which (1) stores a plurality of *instruction* translations in a cold partition of <u>a code cache memory that only stores code instructions generated by a dynamic instruction translator</u>, (2) determines whether the *instruction* translation stored in the cold partition is hot; and (3) moves the *instruction* translation to a hot partition when an instruction translation has been determined to be hot.  None of the applied references relate to such a code cache and, therefore, necessarily do not

teach or suggest any of the claimed features related to the storage and movement of *instruction* translations between hot and cold partitions of a *code* cache.

Specifically, as discussed earlier, Chilimbi relates to partitioning of *data* structures into heavily referenced and less referenced portions with the heavily referenced *data* being kept in a hot object or partition. See col. 2, lines 36-43 of Chilimbi. This storing and partitioning of data in the cache is made clear through out the Chilimbi specification. For example, as shown in Figs. 2 and 3, Chilimbi discloses the data elements a, b, and c (of data structure A) and data elements x and y (of data structure B) being related in a field affinity graph of Fig. 3 so that data that have a temporal affinity can be co-located in a cache. See, for example, cols. 6-9 of Chilimbi that describe this process. Therefore, nowhere does Chilimbi teach or suggest management for a *code* cache in which instruction translations are stored and moved between cold and hot partitions as recited in the pending independent claims. Therefore, Chilimbi does not disclose these claimed features in the pending independent claims.

The Office Action relies on Neufeld for curing the deficiencies of Chilimbi. However, Neufeld also does not disclose or suggest the claimed storing of a plurality of *instruction* translations in a cold partition of a code cache memory that only stores code instructions generated by a dynamic instruction translator. Specifically, Neufeld relates to an improvement in conventional caches (which largely store data) whereby a score is kept of the number of cache lines used by a process thread so that an efficient method of cache replacement can be performed by a scheduler which schedules multiple process threads on a single or multi-processor computing system. In no way does Neufeld relate to **(a)** a code cache memory that **(b)** only stores code instructions **(c)** generated by a dynamic instruction translator. Specifically, the cited portion in the Office Action only states "the cache memory lines 310 [to] rapidly access *data and* instruction information for the execution of a process thread." See col. 12, line 67 to col. 13, line 2 of Neufeld. Therefore, Neufeld has nothing to do with the features (a), (b), or (c) recited in each of the pending independent claims.

Since several recited features in the pending independent claims are not disclosed or suggested by the applied prior art, the Office Action fails to make a *prima facie* case of

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obviousness with respect to the pending independent claims. Accordingly, the applied rejections should be reconsidered and withdrawn.

The dependent claims are also patentable for at least the same reasons as the independent claims on which they ultimately depend. In addition, they recite additional patentable features when considered as a whole.

For example, claims 10 and 20 recite recite determining whether a hot instruction translation in the hot partition of the code cache memory exceeds a second threshold value and if so, it expands the size of the hot partition by adding thereto an expansion area contiguous to the hot partition. *First*, as discussed earlier, Chilimbi does not disclose anything related to a code cache. *Second*, with respect to this feature, the Office Action cites to portions of Chilimbi which only discloses a generic computing system and the Office Action then alleges that such a conventional computing system "is capable of creating and maintaining numerous memory partitions."

Of course, such a generic disclosure which is "capable of" having the claimed feature does not meet the PTO's burden to making a prima facie case of obviousness. The Patent Office (PTO) has the burden of proving each of the claimed features is shown by the prior art. An allegation that claimed subject matter is obvious requires a positive, concrete teaching in the prior art, such as would lead a person skilled in the art to choose the claimed combination from among many that might be comprehended by broad prior art teachings. The PTO's review court has made it very clear that silence in a reference is hardly a substitute for clear and concrete evidence from which a conclusion of obviousness (or anticipation) might justifiably flow. See, e.g., *Application of Burt*, 356 F.2d 115, 121 (CCPA 1966). Accordingly, the features recited in claims 10 and 20 are also not disclosed by the applied prior art and this provides additional reasons for the patentability of these claims.

## Conclusion

In view of the above, applicants believe that the application is now in condition for allowance. An indication of the same is respectfully requested. If there are any questions regarding the application, or if an examiner's amendment would facilitate the allowance of one or more of the claims, the examiner is invited to contact the undersigned attorney at the local telephone number below.

Respectfully submitted,

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